ITEM: **7**

SUBJECT: Aquifer Storage and Recovery (ASR) Projects
a. General Information Regarding Potential Water Quality Impacts
b. Consideration of Waiver for the City of Tracy ASR Project

BACKGROUND: Aquifer Storage and Recovery (ASR) projects are being considered by a number of municipalities to increase their drinking water supplies by pumping water underground in times of abundant supply and extracting water from the same aquifer in times of need. In contrast to other types of conjunctive use projects, ASR projects utilize treated drinking water as the type of water injected into the aquifer. Due to constituents present in the raw source water and disinfection byproducts formed during chlorine disinfection, the injected drinking water may contain chemical constituents in concentrations that violate one or more water quality objectives for groundwater. The City of Tracy has submitted a Report of Waste Discharge requesting that it be allowed to complete a demonstration project to determine the feasibility of a full-scale ASR project.

ISSUES: The first staff report provides general information about ASR projects, their potential for water quality impacts, and regulatory issues. The current regulatory climate is described, not just for the Central Valley Region, but for other regional boards and the State Board. Finally, staff propose a regulatory scheme for these projects. It is noted that the Non15 program is already operating under extremely limited resources, and regulating conjunctive use sites in the manner proposed will strain staff resources further. The Board is asked to comment on the proposed regulatory scheme.

The second item is the Board's consideration of a Resolution waiving waste discharge requirements for the City of Tracy's Demonstration Phase of its ASR project. The demonstration study would consist of four separate injection-storage-recovery (ISR) cycles, during which a specified volume of treated drinking water would be injected into the aquifer, the injected water would be stored in the aquifer for a specified amount of time, and then a specified volume of water would be extracted from the aquifer and discharged into the City drinking water system. Staff have several concerns regarding the proposed project, including (a) the fact that disinfection byproducts, including trihalomethanes and haloacetic acids, are present in the treated drinking water at concentrations greater than that in the groundwater and greater than the water quality objectives, (b) the City has not fully characterized its injection water or the specific groundwater aquifer for all possible consitituents of concern, (c) the length of the proposed project is over two years, and during this time, the constituents of concern may migrate beyond the final extraction capture zone, and (d) the monitoring wells already installed by the City are not sufficient to demonstrate whether all constituents of concern are captured or whether a full-scale project will

comply with the Basin Plan and Board policies.

Due to the above concerns, staff have prepared a waiver for only the first two of the four ISR cycles. The waiver would allow a total of 63 million gallons of drinking water to be injected into the aquifer, and requires that 200% of the injected water be extracted after each test. It also requires pre-test monitoring to fully characterize the injected water and the groundwater, as well as monitoring during the demonstration project. The City must prepare a Contingency Plan, and implement it if groundwater pollution is found beyond the anticipated injection front for each cycle, or if pollution is found anywhere in the aquifer upon completion of the recovery phase.

The City of Tracy objects to several aspects of the waiver. The City states that all four ISR cycles, not just two, are necessary to make conclusions regarding the fate and transport of the contaminants. However, staff believes we should proceed cautiously; the first two cycles will inject 63 million gallons, and the City should demonstrate that it can prevent groundwater pollution from this volume of water before it is allowed to inject even more.

The City plans to extract 100% of the injected water after each of the first three cycles, and 200% after the fourth cycle. The City believes the extraction of 200% after the fourth cycle will ensure that no contaminants remain in the aquifer. Staff are not sure of this, as the four test cycles will take over two years to complete. Therefore, the proposed waiver requires extraction of 200% of the injected water after each cycle.

Finally, the City objects to several aspects of the Monitoring and Reporting Program. Staff has taken these comments under consideration and has modified the MRP in an attempt to accommodate the City's concerns, while still ensuring that sufficient data are collected.

The Department of Health Services has submitted a comment letter questioning the general approach of the waiver resolution, particularly the fact that the resolution allows degradation or pollution of the groundwater without requiring treatment of the injection water to remove constituents of concern prior to injection. DHS states that technology to remove organic contaminants is readily available. However, the City states that it would be extremely costly to remove these contaminants before injection.